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ABSTRACT

To assess hyperactive children's perceptions of drug treatment, a Causal Attribution Questionnaire was developed and introduced as a series of brief stories about "make believe" children to 35 hyperactive males (6 to 13 years) and a comparison group of 35 males. Results showed that the older the child in terms of chronological age, the greater the tendency to attribute causality to internal and unstable factors, i.e., to factors perceived to be amenable to personal control. Among conclusions drawn were that young hyperactive children who use fewer unstable attributions (particularly ones involving efforts) may be more likely to view single performances as determinative of subsequent outcome since each performance outcome is viewed as being based on variables beyond their immediate control: therefore, these children may be more likely to be discouraged by failure, and tend to give up more readily when early successes are not followed by subsequent success. (SBH)

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An Attributional Analysis of Hyperactive Children's Perceptions of Drug Treatment

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An Attributional Analysis of Hyperactive
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Attribution theorists postulate that, in achievement-related contexts, individuals primarily utilize four basic elements of causal ascription both to interpret and to predict the outcomes of achievement-related events (cf. Weiner, 1974; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971). In order to account for the successful or unsuccessful outcome of an event, individuals will assess their own or another's ability level, the amount of effort expended, the level of difficulty of the task, and the magnitude and direction of experienced luck. These four causal factors of ability, effort, task difficulty and luck, can be subsumed within two basic dimensions: locus of perceived control (i.e., either internal or external to the individual) and stability (i.e., stable and immutable or unstable and subject to periodic fluctuation). Thus, in achievement-related contexts, ability is an internal, stable cause of success and failure, effort is an internal, unstable cause, task difficulty is an external, stable cause and luck is an external, unstable cause. From the perspective of Weiner et al (1971), the critical factor in achievement attributions, as they may predict future performance, is not the individual's locus of control (this is considered a secondary feature of attributions), but the stability or perceived mutability of the causal factors.

The present research is conceptually based on recent work in the area of learned helplessness. Specifically, Dweck & Reppucci (1973) and Dweck (1975) demonstrated that when "learned helpless" children (i.e., those who tend to give up in the face of failure) were taught to take responsibility for the outcomes of achievement-related events (especially failure outcomes),

they were able to overcome their helplessness. In other words, when they were taught to attribute their failures to an unstable cause like effort, rather than to more stable causes like ability and task difficulty, they showed an enhancement of their subsequent performance, interest and self-attributions in achievement contexts. Thus, attributions to unstable factors may be more adaptive for future achievement-related behavior, while attributions to stable factors may be less adaptive. By the same logic, when a hyperactive child is treated with medication the child may perceive the drug as an external form of behavioral influence, but the overall outcome of the drug treatment may be primarily related to the child's perception of the mutability of factors associated with the drug.

Given this conceptual framework, the present research was undertaken to assess hyperactive children's perceptions of drug treatment. Specifically, this research sought to determine if hyperactive children make differential attributions for the outcomes of hypothetical achievement-related events in the same way as normal children, and if the locus and stability of their attributions are differentially affected by factors such as age, diagnostic category, drug condition of the hypothetical characters, or situation outcome.

Causal Attribution Questionnaire

To assess the subjects' attributions of causality, a Causal Attribution Questionnaire (CAQ) was developed. The 12 questionnaire items were developed from the identification of cognitive and motor performance domains which are frequently associated with the hyperactive disorder and provide a basis for the assessment of response to drug treatment (cf. Baxley & LeBlanc, 1976). The cognitive domain was related to academic performance, and the motor domain

was related to fine and gross motor behavior. Stories were then developed around these domains which described ficticious children, either taking or not taking medication, and involved in situations in which their behavior resulted in successful and unsuccessful outcomes. Drug condition and situation outcome were counter-balanced across the 12 stories.

Method

Subjects

The hyperactive subjects were 36 males between 6 yrs. 10 mos. and 13 yrs. 3 mos. ($\bar{X}$ = 10 yrs. 8 mos.) who were being followed up as part of their participation in a pediatric psychopharmacology research project at the University of Illinois' Institute for Child Behavior and Development (ICBD). All subjects were receiving therapeutic dosages of stimulant medication at the time of the study.

The normal comparison subjects were 35 males obtained through the Urbana, Illinois public schools, between 6 years 3 months and 13 years 3 months ($\bar{X}$ = 10 years 3 months). They were comparable to the hyperactive subjects with respect to racial and socioeconomic factors, but none had a chronic illness or disorder for which they were taking medication.

In order to assess for the influence of age, both the hyperactive and normal subjects were divided into three age groups: 6-8 yrs.; 9-11 yrs., and 12 and older (cf. Table 1). Parental consent was obtained for all subjects prior to their participation.

Interview Procedures

The hyperactive subjects were interviewed at the ICBD, at the time of their regular follow-up evaluation, and the normal children were interviewed

at the school where each was a student. The subjects in both groups were individually interviewed by the same male research assistant. The CAQ was introduced as a series of brief stories about "make-believe" children in order to assess the subjects' feelings and attitudes about everyday kinds of events that can happen to children. Each story was prefaced by the statement "This is a story about (name of character), and he is taking (or not taking) medication." At the end of each story the subjects were requested to choose, from among the four possible of ability, effort, task difficulty and luck, the response option they thought provided the best explanation for the outcome of the situation described. Each interview lasted for approximately 20 minutes, after which the subjects were given a McDonald's gift certificate.

Results

Internality

A 3 (age) x 2 (diagnostic group) x 2 (drug condition) x 2 (situation outcome) ANOVA with repeated measures on the last two factors was computed on the frequency of internal attributions (i.e., ability and effort vs. task difficulty and luck). The results showed a significant main effect of situation outcome (cf. Table 2). Successful outcomes yielded a greater frequency of internal attributions than unsuccessful outcomes, $F(1,65) = 130.02$, $p < .0001$. The interaction of age and diagnostic group was also significant (cf. Table 3). The 6-8 yr. old hyperactive subjects gave fewer internal attributions than any of the other subject groups, $F(2,65) = 3.31$, $p < .05$.

Stability

An ANOVA was also computed on the frequency of stable attributions (i.e., ability and task difficulty vs. effort and luck). The results showed a signi-

ficant main effect of age (cf. Table 4). Summing across diagnostic groups, the 6-8 yr. old subjects gave a higher frequency of stable attributions than either the 9-11 or 12 and older subjects, $F(2,65) = 3.90$, $p < .05$. There were no significant interactions on the stability dimension.

Attributions

Subjects' attributional choices were analyzed by partition of X^2 (Winer, 1971) for the differential frequencies of each of the four causal factors. Summing across diagnostic groups, effort was the most frequent attributional choice in all three age groups, however, the 9-11 and 12 and older subjects chose effort significantly more often than the 6-8 yr. olds, $X^2(6)=18.31$, $p < .01$. (cf. Table 5).

Effort and task difficulty attributions significantly differentiated the 6-8 yr. old hyperactive and normal subjects. (cf. Table 6) While the most frequent attributional choice among the nonhyperactive subjects was effort, $X^2(1)=25.50$, $p < .0001$, task difficulty was the most frequent choice among the hyperactive subjects, $X^2(1)=7.14$, $p < .05$. Similar comparisons for 9-11 and 12 and older hyperactive and normal subjects were not significant.

Effort was the most frequent attributional choice for both successful and unsuccessful outcomes when the hypothetical characters were described as taking medication. However, when the characters were not taking medication, only the unsuccessful outcomes were more likely to be attributed to task difficulty, $X^2(3)=65.57$, $p < .0001$. (cf. Table 7).

Discussion

The results of the present study generally showed that the older the child in terms of chronological age, the greater the tendency to attribute causality to internal and unstable factors, i.e., to factors perceived to be amenable to personal control. These results are consistent with previous findings of a correlation between chronological age and children's causal attributions (e.g., Bialer, 1961; Milgram, 1971; Nowicki & Strickland, 1973). Thus, there is the suggestion that as children grow older they should become better able to ascribe personal responsibility to achievement-related outcomes.

The subgroup finding of differential attributions to effort (internal and unstable) and task difficulty (external and stable) among the 6-8 yr. old hyperactive and normal children suggests that these children differed both in the locus of their perceived control, as well as in their perception of the stability of the causal factors. As Weiner et al. (1971) view effort as an unstable attribute that is subject to periodic change, one might argue that the greater tendency of 6-8 yr. old hyperactive children to perceive behaviors and their consequences to be beyond the immediate control of the actor (especially when the actor has not had his medication) suggests the potential for the development of a "helpless" behavioral style. In other words, young hyperactive children who use fewer unstable attributions (particularly ones involving effort) may be more likely to view single performances as determinative of subsequent outcome since each performance outcome is viewed as being based on variables beyond their immediate control. Therefore, these children may be more likely to be discouraged by failure, and tend to give

up more readily when early successes are not followed by subsequent success. Thus, each performance occasion may take on more stable significance, particularly when such occasions are not associated with the presence of a drug.

This interpretation of the present results fits well with some of the recent findings of Dweck (1975), and suggests that teaching drug-treated hyperactive children to make effort attributions may be an important treatment focus as a means of enhancing their subsequent performances and self-attributions in achievement contexts when their drug treatment is discontinued. One might legitimately argue, however, that given the nature of the difference between the 6-8 yr. old hyperactive and normal children, one has merely to wait until the hyperactive children grow a little older, when they too should be expected to become better able to ascribe personal responsibility for achievement outcomes. However, a question that remains to be determined is what the observed age differences in the present study represent. For example, we need to assess whether the attributional differences found among hyperactive and normal 6-8 yr. olds are based either on factors peculiar to their diagnostic classification (i.e., hyperactive vs normal) or on some other variables. Toward this end, work is currently being directed at an analysis of the possible influence of hyperactive children's drug treatment history on their causal perceptions.

Table 1

Mean Ages of the Hyperactive and

Nonhyperactive Subjects

	Hyperactive			Normal		
	9-8	9-11	12+	6-8	9-11	12+
N=	12	12	12	12	12	11
$\bar{X}$ age=	8-0	10-1	13-3	7-2	10-7	12-7
S.D.=	0-7	0-9	1-5	0-10	0-11	0-6

Note - Ages expressed in years and months.

Table 2

Percent of Internal (Ability + Effort)

Attributions as a Function of Situation

Outcome*

	Success	Failure
Ability	30	13
Effort	49	32
Total	79	45

* $F(1,65)=130.02$; p .0001.

Table 3

Percent of Internal (Ability & Effort)

Attributions for Each Age Group of

Hyperactive and Nonhyperactive Subjects*

	Hyperactive			Normal		
	Ability	Effort	Total	Ability	Effort	Total
6-8 yr. olds	28	26	54	24	40	64
9-11 yr. olds	19	41	60	18	44	62
12 + yr. olds	22	52	74	17	42	59

*$F(2,65)=3.31$; $p < .05$.

Table 4

Percent of Stable (Ability & Task)

Attributions for Each Age Group*

Age Group	Ability	Task	Total
6-8	26	27	53
9-11	19	25	44
12+	20	17	37

*$F(1,65)=3.90$; $p < .05$.

Table 5

Percent of Effort Attributions as a Function of Age Group*

Age Group	Percent of Choices
6-8 yr. olds	33
9-11 yr. olds	42
12+ yr. olds	47

*$X^2(6)=18.31$; p .01.

Table 6

Pattern of Attributions as a Function of Age and Diagnostic Group

Hyperactive			Normal		
6-8	9-11	12+	6-8	9-11	12+
Task (34)	Effort (41)	Effort (52)	Effort (40)	Effort (44)	Effort (42)
Ability (28)	Task (24)	Ability (22)	Ability (24)	Task (26)	Luck (21)
Effort (26)	Ability (19)	Task (15)	Task (21)	Ability (18)	Task (20)
Luck (12)	Luck (16)	Luck (11)	Luck (16)	Luck (12)	Ability (17)

Note - Percent of choices in parentheses.

6-8 yr. olds: $X^2(3)=9.92$; p .05.

9-11 yr. olds: $X^2(3)=0.94$; p = .8.

12+ yr. olds: $X^2(3)=7.36$; p = .06.

Table 7

Pattern of Attributions as a Function

of Situation Outcome and Drug Condition

Success		Failure	
Drug	No Drug	Drug	No Drug
Effort (5)	Effort (48)	Effort (33)	Task (34)
Ability (29)	Ability (30)	Task (30)	Effort (31)
Task (13)	Task (15)	Luck (21)	Luck (24)
Luck (8)	Luck (7)	Ability (16)	Ability (10)

Note - Percent of choices in parentheses.

Outcome x Drug: $X^2(3)=42.08$; p .0001.

Outcome x No Drug: $X^2(3)=65.57$; p .0001.